

SCHEPPEGRELL (W.)

With Regards
of the Author.

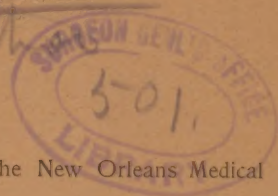
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Non-Malignant Tumors of the Larynx.

By W. SCHEPPEGRELL, A. M., M. D.,

ASSISTANT SURGEON EYE, EAR, NOSE AND THROAT HOS-
PITAL; ASSISTANT TO CHAIR OF LARYNGOLOGY,
ETC., NEW ORLEANS POLYCLINIC,
NEW ORLEANS, LA.

presented by the author



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and Surgical Journal.







a.—VASCULAR SPACES.

b.—VASCULAR SPACES, with fragments of clots *in situ*.

c.—MUCOSA, covered with stratified epithelium.

DR. SCHEPPEGRELL'S CASE OF FIBROMA OF LEFT VOCAL CORD.

Non-Malignant Tumors of the Larynx.

By W. SCHEPPEGRELL, A. M., M. D.,

Assistant Surgeon Eye, Ear, Nose and Throat Hospital; Assistant to Chair of Laryngology, etc., N. O. Polyclinic, New Orleans.

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Prior to the introduction of the laryngoscope the diagnosis of laryngeal tumors was rare, this condition being recognized during life, only in those cases in which the size or position of the neoplasm allowed it to be seen directly through the fauces. In the large majority of cases these tumors were found only at the post-mortem examination.

The literature relating to laryngeal tumors was so scanty that in 1854 Middeldorff¹ was able to collate only 64 cases, in only 9 cases of which any attempt at extirpation was made.

The introduction of the laryngoscope, however, developed a new era in the diagnosis and treatment of laryngeal diseases, and its influence on the literature of laryngeal tumors was soon apparent. Thus in 1876 Fauvel² published a detailed history of 300 cases of laryngeal tumors (Polypes du larynx) observed by him during the previous fifteen years; Navratil³ saw 788 cases, Tobold⁴ 492, Schroetter⁵ 471, and many other observers each report a large number of cases. According to the collective investigation of Semon⁶, 10,747 benign laryngeal growths were reported by 107 observers, and, of these cases, 8216 cases were operated upon.

The large number of reported cases would lead us to suppose that benign growths of the larynx are of common occurrence. That this is not the case is universally acknowledged by laryngologists, except Fauvel,² whose experience in this respect appears to have been somewhat exceptional. Newman⁷ states that they constitute not more than 2 to 2½ per cent. of all chronic diseases of the larynx, and Lennox Browne⁸ and McBride⁹ fix the proportion at a still lower figure.

In the 15th Annual Report of the Presbyterian Eye, Ear and Throat Hospital, of Baltimore, kindly sent me by Dr. J. J. Chisolm, I find that of 19,997 cases of throat diseases treated during fifteen years at the hospital, there were but thirty-seven cases of benign growths of the larynx observed, a proportion of one to 540 cases. By reference to the reports of the Eye, Ear, Nose and Throat Hospital of this city, we note that during the preceding three years 4220 cases of throat diseases were examined, among which only fourteen cases of non-malignant tumors were found, a proportion of one to 300 cases. From these statistics it will be seen that, in this country at least, benign neoplasms of the larynx are cases of considerable rarity.

Etiology.—The pathogenesis of laryngeal tumors is still an undecided question. In many cases we find present a hyperæmic condition of the larynx, but it is still unsettled whether this condition plays a role of cause or effect. Bosworth²⁴ states that in a large proportion of his cases he could find not only no inflammatory condition to account for the presence of the neoplasm, but the growths had not even excited any morbid process in the surrounding tissues. Lennox Browne⁸ found the greater number of his cases in professional singers, actors and others who made an excessive use of the voice; and this is also the experience of Fauvel.² Morrell Mackenzie,¹⁰ however, reports a case of a laryngeal tumor found in a deaf mute.

Cohen¹¹ surmises that the effective cause is frequently a catarrhal condition in connection with the exanthemata, or resulting from diphtheria, pertussis or the inhalation of irritant vapors.

In the seven cases which have come under my observation, one was due to severe exposure, two to excessive use of the

voice, and the cause in the remaining cases could only be surmised.

Tuberculosis and syphilis have been considered factors in the etiology of laryngeal tumors, but this is not supported by clinical experience. As pointed out by Sajous,¹² we may have, during an active manifestation of specific or tuberculous disease, laryngeal growths simulating papillomata, but they always present a marked difference in their development and course, and are often of temporary duration.

Laryngeal growths are found more frequently in men than in women, probably on account of the greater exposure of the former. They are eminently a disease of middle age, but are sometimes met with during childhood and may even be of congenital origin. Dufour¹³ mentions a case of a child born with aphonia, which afterward developed dyspnœa. Twelve months afterward the child died of suffocation and a large papilloma was found obstructing the larynx. Edis¹⁴ also describes a case of a child which died thirty-seven hours after birth from suffocation. The post-mortem showed the larynx almost occluded by a large cystoma.

On the other hand, Summerbrodt¹⁵ removed a mucous polypus from the larynx of a minister 80 years of age, in whom dysphonia had been noticed during only six weeks before.

Symptomatology.—As these growths vary in character, size and location, so the symptoms vary within very wide limits. The most common symptom present is change of voice, a condition that was present in 92 of Mackenzie's 100 cases,¹⁰ and in all of Fauvel's 300 cases.

The influence on the voice will depend not only on the size of the tumor but also on its location, a small growth on the vocal cords causing, by its mechanical effect, marked hoarseness, while a much larger tumor on the ary-epiglottic fold, or on the epiglottis, may affect the voice but little.

Dyspnœa was found present in about 8 per cent. of the recorded cases, and is due to the size of the tumor; it is more marked after exertion of any kind. Pain is rarely present in benign growths, but a feeling as of a foreign body in the throat is sometimes complained of, especially if the growth is on the epiglottis.

Dysphagia is present if a growth of sufficient size is situated on the epiglottis or the posterior wall of the larynx. Occasionally, however, cases are met in which no symptoms, referable to the larynx, are complained of.

Diagnosis and Pathology.—The diagnosis of a tumor in the larynx is rendered certain only by the use of the laryngoscope. With this the diagnosis usually presents no serious difficulty, although sometimes retarded by the irritability of the patient or an overhanging epiglottis. With patience, however, the cases are exceedingly rare in which the larynx can not be examined, and in difficult cases the examination will be facilitated by the use of a spray of a 5 or 10 per cent. solution of cocaine. In children it is sometimes impossible to use the laryngoscope, and in these cases the finger may be passed carefully into the larynx and thus assist the diagnosis.

The character of the tumor is a much more difficult matter to determine, and is rendered certain only by the microscope, although the clinical appearance, in many cases, is sufficiently characteristic to fix the diagnosis. The eversion of the ventricles of the larynx may simulate a tumor, but this is an exceedingly rare condition. The first case in which this condition was diagnosed during the life of the patient was recorded by Lefferts¹⁶ in 1876, although several cases have since then been reported.

A matter of the first importance is the differentiation of benign from malignant growths. In the latter we have usually an infiltration of the surrounding tissues, pain, ulceration, and, in advanced cases, a cachexia—conditions which are rarely present in benign growths. In doubtful cases, however, a portion of the tumor should be removed and the diagnosis made certain with the microscope.

In order to distinguish benign growths of the larynx from syphilitic condylomata and tubercular laryngitis, Ingalls¹⁷ gives the following useful tables:

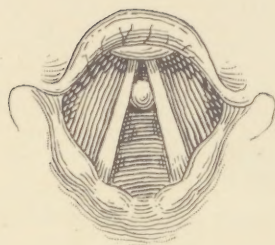


FIG. 1.
FIBROMA OF LEFT VOCAL CORD,
DURING GENTLE BREATHING.

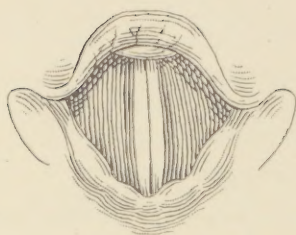


FIG. 2.
FIBROMA OF LEFT VOCAL CORD,
DURING GENTLE PHONATION.

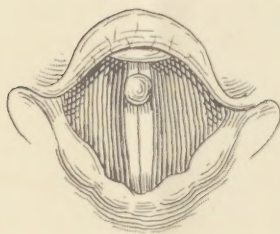


FIG. 3.
FIBROMA OF LEFT VOCAL CORD,
DURING STRONG PHONATION.

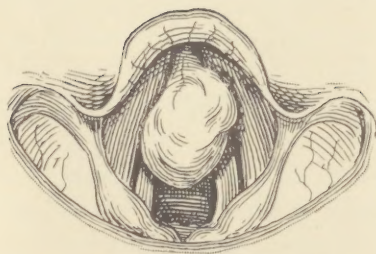


FIG. 4.
LARGE FIBROMA WITH ITS POINT OF
ATTACHMENT BELOW THE GLOTTIS.

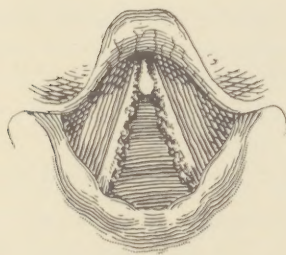


FIG. 5.
MULTIPLE PAPILLOMATA OF
VOCAL CORDS.

BENIGN GROWTHS OF THE LARYNX.

Commonly in middle and advanced life; occasionally in children.

History of continued local hyperæmia [?]

Usually found upon the vocal cords or ventricular bands.

Distinct line of demarcation between growth and surroundings.

Usually no ulceration present.

Operative measures usually necessary.

BENIGN GROWTHS OF THE LARYNX.

No cachexia or pulmonary disease.

Absence of pain.

Hyperæmia or normal color of mucous membrane; no ulceration or peculiar swelling.

Benign papillary tumors less sessile than tuberculous granulations; no purulent secretion.

The benign laryngeal tumors which are most frequently met with are papillomata and fibromata. Besides these, there are found cystomata, lipomata, myxomata, chondromata, angiomata, etc.

Papillomata (Figs. 5 and 6) are found more frequently than other non-malignant tumors of the larynx. In the collective investigation conducted by Semon,⁶ of 10,747 benign growths observed in the larynx, 4190, or about 39 per cent., were found to be papillomata. They are found more often in children and young people, and more frequently on the vocal cords, especially the anterior third, although sometimes appearing in other parts of the larynx. They have not, however, been found in the arytenoid commissure, a common site of tubercular, specific and malignant disease—a point of diagnostic importance.

Papillomata vary in size from a scarcely visible growth to one or two centimetres in diameter, are more often sessile than pedunculated, and frequently present a mushroom—or as Stoerk¹⁸ has it, a “cockscorn” appearance. They vary in color from a light pink to a dark red, and sometimes present the whitish appearance of an ordinary wart on the skin. They are sometimes single, but more often multiple.

SYPHILITIC CONDYLOMATA OF THE LARYNX.

Commonly in early and middle life.

History of infection; appearance five or six weeks after inoculation.

Usually found at back part of the larynx.

No line of demarcation.

Ulceration frequently present.

Rapid disappearance under anti-syphilitic treatment and use of local astringents.

TUBERCULAR LARYNGITIS.

Usually grave constitutional symptoms and signs of associated pulmonary affection.

Usually painful.

Pallor of the mucous membrane, with peculiar swelling of the arytenoids and ulceration.

Tuberculous fungous granulations are of light color; appear as thickenings rather than outgrowths; and are associated with ulceration and purulent secretion.

Papillomata show a marked tendency to recur, but this is not due to any malignancy but from the difficulty of entirely eradicating the morbid tissue, and also, no doubt, from the continuance of the same agency which originally caused the neoplasm. They irritate simply by their presence, and Stoerk¹⁸ records a case in which a papilloma persisted for twenty-six years without setting up any destructive process in the adjacent tissues.

The microscopic appearance of a section of a papilloma is shown in Fig. 12 (from Fauvel). It can be mistaken only for an epithelioma (Fig. 18); in the former, however, the epithelium grows *outward*, but in the latter the epithelium grows *inward*, invading the subjacent tissues.

In regard to the histology of papillomata, Virchow¹⁹ discredits that they are the hypertrophy of single papillas, but claims that they are the proliferation and hardening of the epithelial cells, and that the papilla play but a minor role in the neoplasm. This view is accepted by Gottstein²⁰ and Rosenthal,²¹ but opposed by Ziegler, Birch-Hirschfeld and others.

Fibromata.—Next in importance are the fibromata, which are found less often than the papillomata, but more frequently than other non-malignant growths. They are usually rounded, sometimes lobulated, either sessile or pedunculated; in color, from a light pink to dark red, or grayish, and are of more or less firm consistency. They belong to the adult period of life and are found most often on the vocal cords.

Attention has been called by the German laryngologists to the presence of small fibroid nodules frequently observed in the vocal cords of professional singers and others who make an excessive use of the voice. These have been called by Stoerk¹⁸ "singer-nodules" (Saenger Knoten), and are usually found on the pars ligamentosa of the vocal cord. These nodules are sometimes found singly, but frequently a second nodule is formed on the opposite vocal cord, one nodule having a depression into which the second fits. They may persist for years and occasionally disappear spontaneously.

The microscopical appearance of a section of a fibroma is shown in Fig. 13. Histologically it consists of interlacing



FIG. 6.
PAPILLOMA OF VENTRICULAR BAND, COM-
PLETELY FILLING VESTIBULE OF LARYNX.

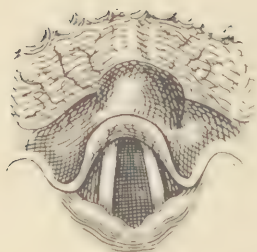


FIG. 7.
CYSTOMA OF LINGUAL SUR-
FACE OF EPIGLOTTIS.

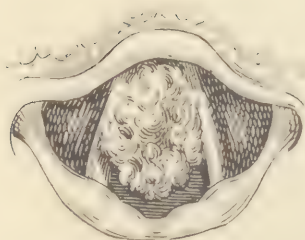


FIG. 8.
MYXOMA OF THE LARYNX.

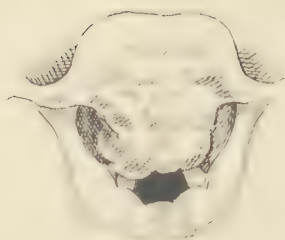


FIG. 9.
CHONDROMA OF EPIGLOTTIS.

fibres of connective tissue, with sometimes a large, sometimes a small quantity of blood vessels, according to the vascularity of the tumor.

Cystomata are generally the result of the occlusion of the duct of a muciparous gland, and are therefore found most frequently where these glands are found and where they may undergo an unrestricted dilatation, as on the lingual surface of the epiglottis, and in the ary-epiglottic folds.

Cystoma are considered by Moure²² not as frequent as papillomata, but, next to these, the most commonly observed benign growths of the larynx. They are found most frequently on the epiglottis, and in the three cases which have come under my observation the cystomata were found on this portion of the larynx.

Cystomata presents a smooth rounded mass of variable size, which is freely movable and fluctuating under the probe. They are usually easily incised, and, if properly opened, do not recur. They consist of a simple sac, the contents being sometimes clear and serous, and sometimes thick and syrupy.

Lipomata of the larynx are of exceedingly rare occurrence, only three or four cases having been recorded. They present the histological appearance of lipomata found in other portions of the body. The most important case is described by von Bruns,²³ in which the neoplasm took its origin from the posterior wall of the larynx. It was bright red, smooth, and of soft, elastic consistency. The tumor was destroyed by the galvano-cautery in fifteen sittings.

Myxomata.—With exception of Fauvel,² who reported over 15 per cent. (53) of his 300 cases as “mucous polypi (polypes muqueux),” the literature on the subject shows but thirteen reported cases of myxomata. The large number of myxoma found by Fauvel, in comparison with other observers, throws considerable discredit on the diagnosis of these cases, and Bosworth,²⁴ among others, mentions his doubt as to the true pathological character of the growths.

Myxomata (Fig. 8) have been observed most frequently on the vocal cords, but they have also been found in other parts, as the epiglottis and lateral walls of the larynx.

While they occasionally present the appearance of a fibroid,

they frequently present the characteristic gelatinous appearance of mucous polypi found in the nasal chambers, and their softness allows them to be indented and pressed aside by the approximation of the vocal bands. For this reason they do not interfere with phonation to the extent caused by the firmer variety of tumors.

Microscopically, laryngeal myxomata present the appearance (Fig. 14) of mucous polypi found in other parts; myxomatous cells of various sizes and forms being supported by interlacing fibres of connective tissue.

Chondromata (Fig. 9) are cartilaginous tumors growing from previously existing cartilage; that is, from the cricoid, thyroid, arytenoid or epiglottic cartilage. About fifteen cases have been reported.

Angiomata (Fig. 10) are vascular tumors, which have occasionally been found in the larynx. Most of the reported cases were found on the vocal cords, and were single, with exception of a case reported by Wolfenden,²⁵ in which a vascular growth was found on both vocal cords.

Histologically, angiomata are composed of blood vessels loosely held together by connective tissue (Fig. 15). They are dark red or bluish in color, and are liable to hæmorrhage after removal.

PROGNOSIS.—In regard to the prognosis, this must be taken in two aspects; one in relation to life and the other in relation to the voice. As regarding life, owing to the slow development of these tumors, the prognosis is generally favorable, as any tendency to suffocation, resulting from the increased size of the tumor, may be obviated by tracheotomy. McBride⁹ considers the prognosis as regards life as “invariably favorable,” while Ingalls¹⁷ views these cases, in which the tumors can not be removed, as always dangerous, especially in young children, in which the small size of the larynx and disposition to spasm enhances the danger.

In most cases, these tumors may be removed by the intralaryngeal method, but where this method is not feasible, the prognosis is not so favorable. Thyrotomy offers another method of removing laryngeal tumors inaccessible *per vias naturales*; but this operation is justified only where the life of

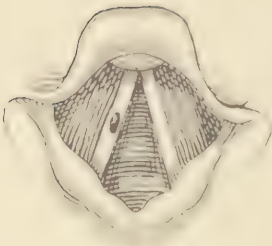


FIG. 10.
SMALL ANGEIOMA OF RIGHT VOCAL CORD.

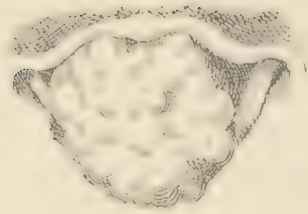


FIG. 11.
LARGE ADENOMA OF LARYNX.



FIG. 12.—PAPILLOMA, (X 350 DIAM.)

the patient appears in danger of asphyxiation. In most cases in which thyrotomy has been performed the voice has been but little benefited by the operation.

In respect to the voice the prognosis is not so favorable as it is regarding the life of the patient. In cases of pedunculated fibroids the voice is usually entirely restored after removal of the neoplasm, but in cases of broad, sessile and multiple tumors the voice is usually impaired, even where the growths are removed by the endolaryngeal method.

Benign tumors of small size frequently remain for years, or even for life, without giving rise to other symptoms than the impairment of the voice.

It is interesting to note the occasionally observed spontaneous disappearance of laryngeal tumors, six cases having been reported. Of special interest is a case reported by Jurasz²⁶ of a boy of seven years, who suffered from multiple papillomata of the epiglottis and the interior of the larynx. The tumors were removed by the endolaryngeal method, but recurrence took place, necessitating tracheotomy. Shortly afterward the patient had an attack of enteric fever. When the larynx was examined after convalescence, the papillomata had disappeared.

Gottstein²⁰ also records a case of a laryngeal polypus in a boy of six years, disappearing shortly after an attack of morbilli.

As already noted, papillomata show an intrinsic tendency to recurrence, probably on account of the extreme difficulty of entirely eradicating the morbid tissue. This tendency of papillomata to proliferation is so marked, that Gerhardt²⁷ states that "their manifold appearance adjoining one another points to a capacity for spreading (*Ausbreitungsfähigkeit*) which seems almost contagious." With exception of the papillomata, recurrence is the exception with benign laryngeal tumors.

Of vital importance is the question as to the degeneration of benign into malignant growths, and the influence of surgical interference on this tendency.

In 1875, Lennox Browne⁸ called the attention of the profession to the not infrequent metamorphosis of benign into malignant growths, in consequence of the irritation resulting

from the surgical measures used to remove them. So much was he impressed with the danger of this transformation that he urged surgical interference only in those cases in which the life of the patient was in danger. In his views on this subject, Browne has been to some extent supported by Solis Cohen.

On this subject, the collective investigation conducted by Semon⁶ already referred to has been of very great importance.

In this collection, to which 107 observers contributed, there were 2531 cases of benign neoplasms which were not operated upon, malignant degeneration taking place in twelve, or one in 211 cases; while of 8216 cases operated upon, this degeneration took place after operation in thirty-three cases, or one in 249 cases. These results prove conclusively that, while degeneration of benign with malignant growths sometimes takes place, this tendency is not unfavorably influenced by surgical interference.

According to Virchow, this degeneration into malignancy takes place only when there is present a constitutional predisposition to cancer, the results being the same whether surgical interference is adopted or not.

TREATMENT.—This may be palliative or radical. The palliative treatment consists in local applications to decrease the hyperæmia or irritation of the larynx, constitutional measures, and in those cases in which the life of the patient is endangered by the size of the tumor, in tracheotomy.

The radical treatment consists of surgical measures of various kinds, for the removal or destruction of the laryngeal growths. These measures may be either intra-laryngeal or extra-laryngeal.

In the extra-laryngeal operation, thyrotomy is performed in some of its modifications. As the operation requires a preliminary tracheotomy, it is not to be recommended except in cases in which life is endangered by the laryngeal growth.

Fortunately most neoplasms of the larynx may be operated upon by the endo-laryngeal method, and many of the major difficulties have been removed or lessened since the introduction of cocaine anæsthesia. The operation, nevertheless, requires considerable manipulative skill and delicacy on the part of the surgeon, and also intelligence and a certain amount of tolerance on the part of the patient.

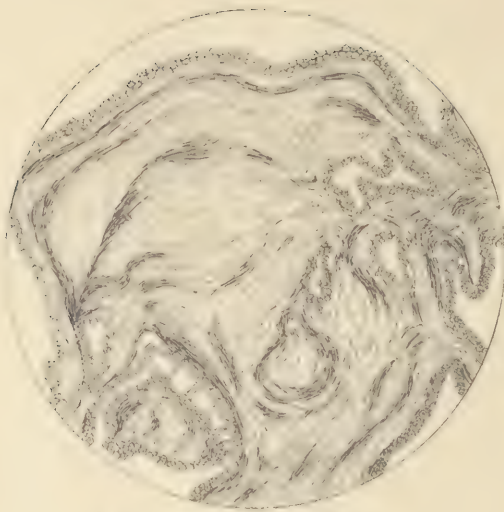


FIG. 13.—FIBROMA, (X 350 DIAM.)

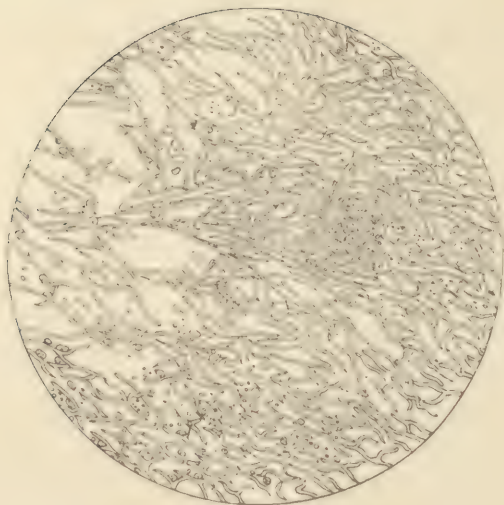


FIG. 14.—MYXOMA, (X 350 DIAM.)

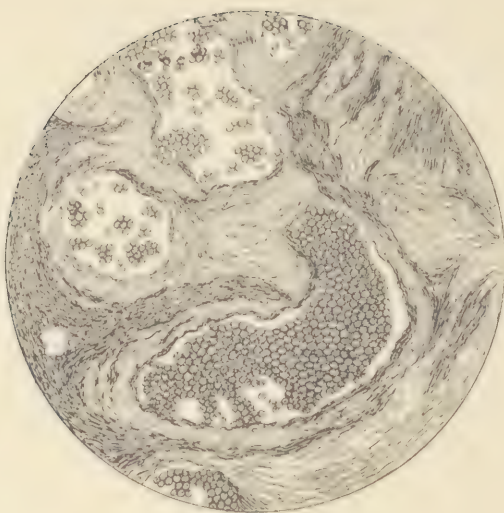


FIG. 15.—ANGEIOMA, (X 350 DIAM.)

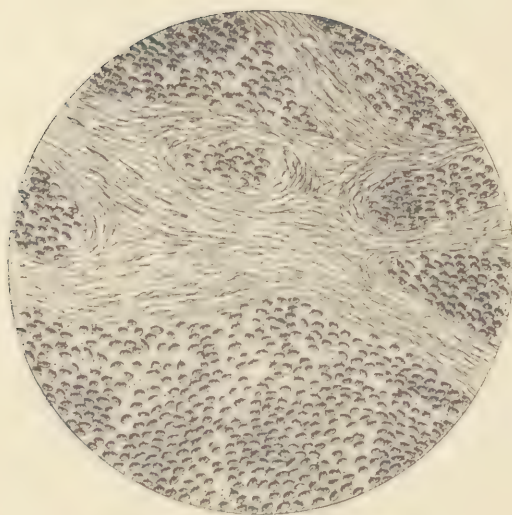


FIG. 16.—SARCOMA, (X 350 DIAM.)

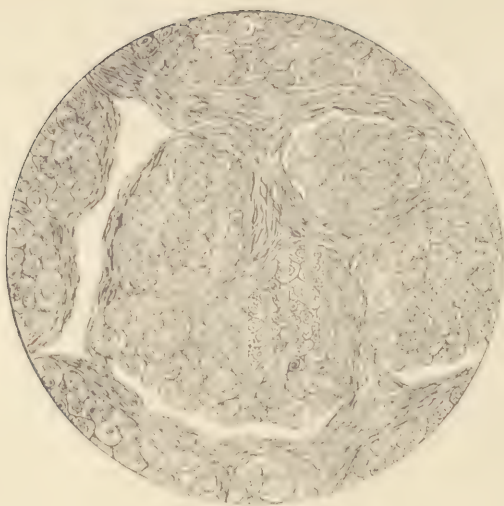


FIG. 17.—CARCINOMA, (X 350 DIAM.)

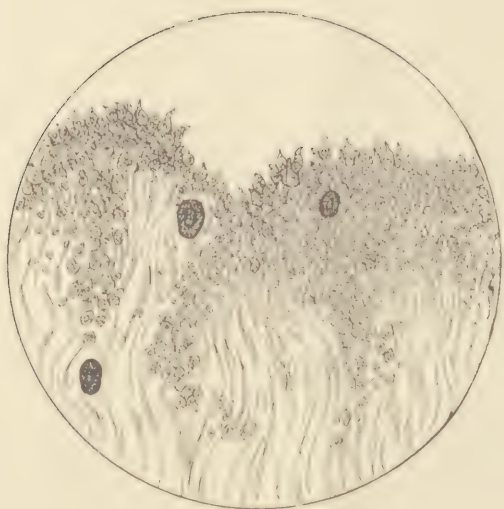


FIG. 18.—EPITHELIOMA, (X 350 DIAM.)

Local anæsthesia is produced by a 10 or 20 per cent. solution of cocaine applied in the form of a spray, and will usually render the larynx sufficiently tolerant to the manipulations of the operator if great care is exercised; but in spite of this a spasm of the glottis is very easily developed by the touch of the instrument.

In children an operation will rarely be tolerated, in spite of cocaine, and in these cases Hooper²⁸ recommends that, after being etherized, the child be held by the nurse in a sitting position, so that the laryngoscope may be used and the growths removed by forceps.

The removal of tumors from the larynx may be effected by the following methods: evulsion, crushing, excision or incision, curettement, chemical caustics or the electro cautery.

Evulsion is effected by the various forms of laryngeal forceps, such as Schroetter's (Fig. 19), Rumbold's (Fig. 20), or Mackenzie's (Fig. 21). These forceps may also be used for crushing small tumors. After effective crushing the growths usually lose their vitality, and slough off after a week or ten days. For evulsion, the electric or cold snare (Fig. 22) may also be used, and are especially effective where the tumors are pedunculated.

Excision may be performed with Tobold's knives, which are also effective for incising cystic growths.

Curettement is effected in small growths in which no specific tendency to hæmorrhage exists, and may be done with Heryng's instrument designed for curettement in laryngeal tuberculosis.

Of the chemical cauteries chromic acid is the most useful, and should be applied with a guarded instrument such as Jarvis' (Fig. 23). Ingalls¹⁷ recommends an ordinary laryngeal probe, to which the crystal of chromic acid or nitrate of silver is fused. The caustic is protected by a short piece of rubber tubing securely tied to the probe. For most applications the probe is simply pressed directly against the part to be cauterized, the elasticity of the tube allowing the caustic to protrude. For lateral application a piece is cut from the side of the tube.

For small sessile tumors, and sometimes also for tumors of larger growth, the electro-cautery offers especial advantages.

It may be carried into the larynx while cold, and heated only when we are sure that the point is in the proper position. In order to facilitate the rapid heating and cooling of the instrument the platinum point should be made very thin.

As the application of the electro-cautery requires the greatest delicacy, it is important that the closure of the circuit should be made *with the foot and not with the fingers*, as even the slightest movement will interfere with the skilful manipulation of the cautery. An effective cautery battery with foot switch is elsewhere described.²⁹

In cases of soft pedunculated growths of the vocal bands, Voltolini's³⁰ method is also useful. For this, a sponge is firmly secured to the end of a probang, which is passed into the larynx with a rapid up and down movement, sometimes resulting in tearing the growths from their attachment.

In operating for laryngeal tumors, the patient should be seated in a chair with an upright back and head support, and directed to hold out his tongue with a napkin. The larynx is first sprayed with a 5 to 10 per cent. solution of cocaine, and if necessary a 20 per cent. solution may afterward be applied with cotton secured to a laryngeal applicator.

A probe is then passed into the larynx, with full illumination from the head-mirror, in order to ascertain if the anæsthesia is sufficient, and also to obtain fuller information as to the character, position and attachment of the tumor.

In some cases the necessary degree of tolerance is soon attained by the patient, but in most cases it will be found necessary to gradually accustom the patient to the required laryngeal manipulations by repeated sittings.

When the local anæsthesia is sufficient, the instrument to be used is passed into the fauces of the patient until it appears in the laryngeal mirror. The point is then passed downward into the larynx, being careful to avoid touching any unnecessary part, as even the cocaine does not prevent a certain amount of reflex spasm, which would prevent the operator from following the point of the instrument in the mirror. Full illumination, by means of the head-mirror, and preferably from sunlight or electric light, is necessary for the proper management of the operation.

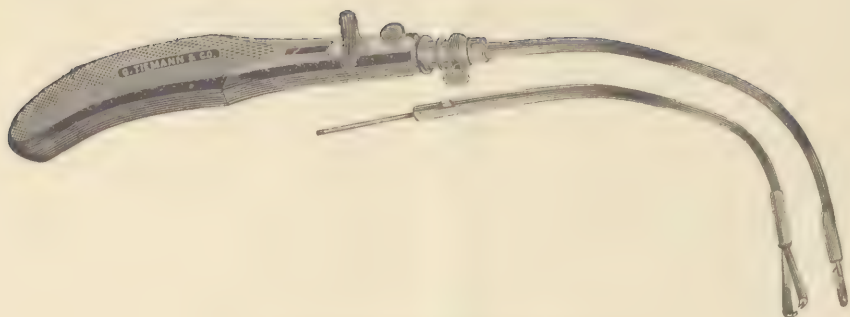


FIG. 19.—SCHIROETTER'S LARYNGEAL FORCEPS.

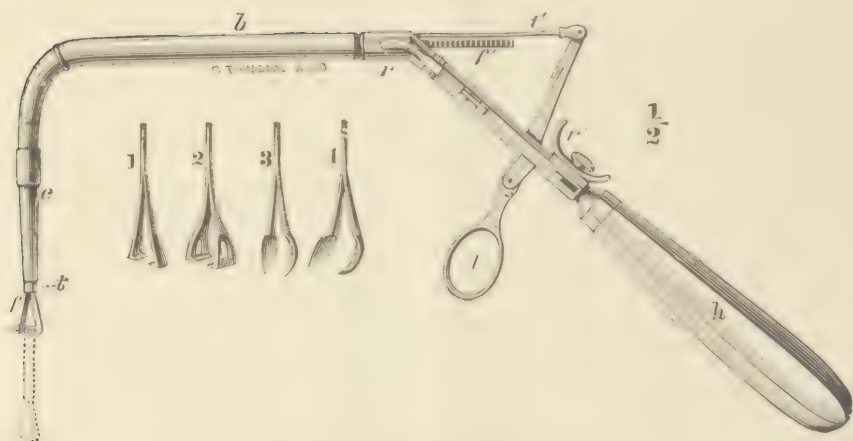


FIG. 20.—RUMBOLD'S LARYNGEAL FORCEPS.



FIG. 21.—MACKENZIE'S THROAT FORCEPS.

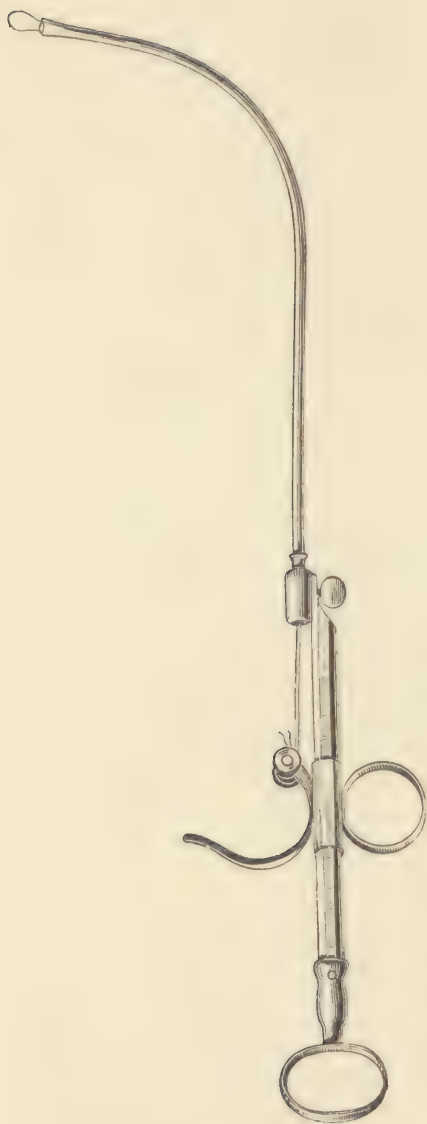


FIG. 22.
LARYNGEAL SNARE.

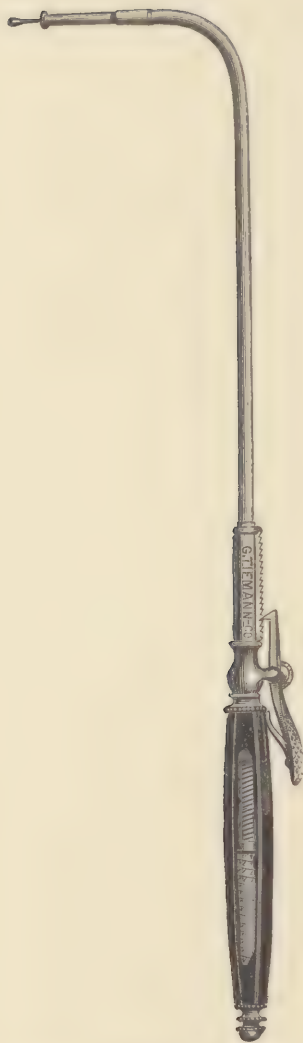


FIG. 23.
JARVIS' LARYNGEAL APPLICATOR.

The choice of instruments will depend upon the size, conformation and location of the tumor. Pedunculatory growths are more conveniently removed with the snare, the electric snare being preferred if the pedicle is large or very firm, or danger of hæmorrhage is anticipated.

Small growths may be removed by evulsion, or crushed, or they may be destroyed with the galvano-cautery. The electro-cautery has so many advantages over the chemical cauteries that I have but rarely made use of the latter.

It should be borne in mind that in certain cases surgical interference is not necessary. A small laryngeal growth in a patient, who suffers no inconvenience from it, or in one who is old or has little occasion to use his voice, should not be disturbed. The case should simply be occasionally examined, so that any increase in size, which might prove dangerous, may be remedied by proper surgical measures.

CASE I (Fig. 5). Edgar M., æt. 14 years, suffers from a husky voice, but no cough or pain. About seven years ago patient had a severe attack of enteritis, from which it was thought that he would not recover. After convalescence it was found that the patient could only speak in a husky whisper. There was no cough, but a slight degree of dyspnœa after severe exertion. As he grew older, the tendency to dyspnœa disappeared and he was able to phonate, but always in a husky voice.

Laryngoscopic examination shows multiple papillomata of the larynx. Both vocal cords are fringed with the growths, which are whitish in color, and in the anterior commissure is a pedunculated papilloma, of a light pink color, which protrudes into the glottic space.

This case has been intubated with O'Dwyer's tubes about fifty times in order to cause absorption of the growths from pressure. Some of the growths have been destroyed by crushing, several small pieces have been evulsed and the probang and sponge, according to Voltolini's method, has been passed a number of times. Although the growth appears to have been arrested, the appearance of the larynx and the sound of the voice have not materially improved.

The reason for this is the markedly overhanging epiglottis

and the extreme nervousness of the patient, which makes any surgical interference very difficult.

CASE II (Figs. 1, 2 and 3). J. H. R., æt. 25, consulted me for hoarseness and cough, which had persisted for six months. Six months before, he saved a boy from drowning by jumping into the Mississippi river and swimming with the boy to land. He caught cold at the time and has since then suffered from cough and hoarseness. He had been treated for bronchitis.

Physical examination of the chest gave negative results.

By the laryngeal mirror a small pedunculated tumor, springing from lower surface of the left vocal cord, could be seen, during gentle breathing, in the anterior commissure (Fig. 1), which disappeared from view on the approximation of the vocal cords during gentle phonation (Fig. 2), but which suddenly reappeared on strong phonation (Fig. 3).

The larynx having been anæsthetized with a spray of a 10 per cent. solution of cocaine, the cold snare (Fig. 22) was carefully passed into larynx, and, its course being watched in the laryngeal mirror, the loop passed over the tumor. The snare was then tightened and the instrument was removed with the tumor still held by the loop. The voice of the patient was at once restored, and a laryngeal examination showed that the tumor had been entirely removed.

Six months later the voice was still clear and the cough had not returned.

Dr. A. McShane, who made a pathological examination of the tumor for me, reports it to be a fibroma containing large cavernous vessels, as seen in the accompanying figure.

CASE III (Fig. 7). George E. H., æt. 27, a singer of considerable capacity, consulted me in regard to hoarseness and the feeling of a foreign body in the throat.

Examination showed marked hypertrophy of the faucial tonsils, chronic laryngitis and a cystic tumor of the lingual surface of the epiglottis (Fig. 7).

The cystoma was first incised, and the sac cauterized. A week later the faucial tonsils were removed with the electric snare. Three weeks later the part had healed and no return of the growth has since occurred.

In addition to this case of cystoma I saw a small cyst of the epiglottis in the practice of Dr. A. W. deRoaldes, in which the patient complained of a feeling of a foreign body in the throat; and, also, one case in the practice of Dr. Augustus McShane, in which the cyst covered the larger portion of the lingual surface of the epiglottis, giving rise to dysphagia. In both cases the cyts were destroyed with the electro-cautery.

CASE IV (Fig. 10). Henry D., æt. 36, consulted me for a chronic cough. Examination disclosed a "dislocation and thickening of the triangular cartilage of the septum, causing marked stenosis, and chronic laryngitis. In the middle of the upper surface of the left vocal cord could be seen a dark red vascular tumor, about one and a half millimetres in diameter.

After the nasal stenosis had been remedied by proper surgical means the electrocautery, heated to a dull red, was passed into the previously cocainized larynx, and applied to the tumor, which was destroyed. There was no hæmorrhage. Five months later, the growth had not reappeared; the patient had gained twelve pounds, and had had no cough for three months.

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